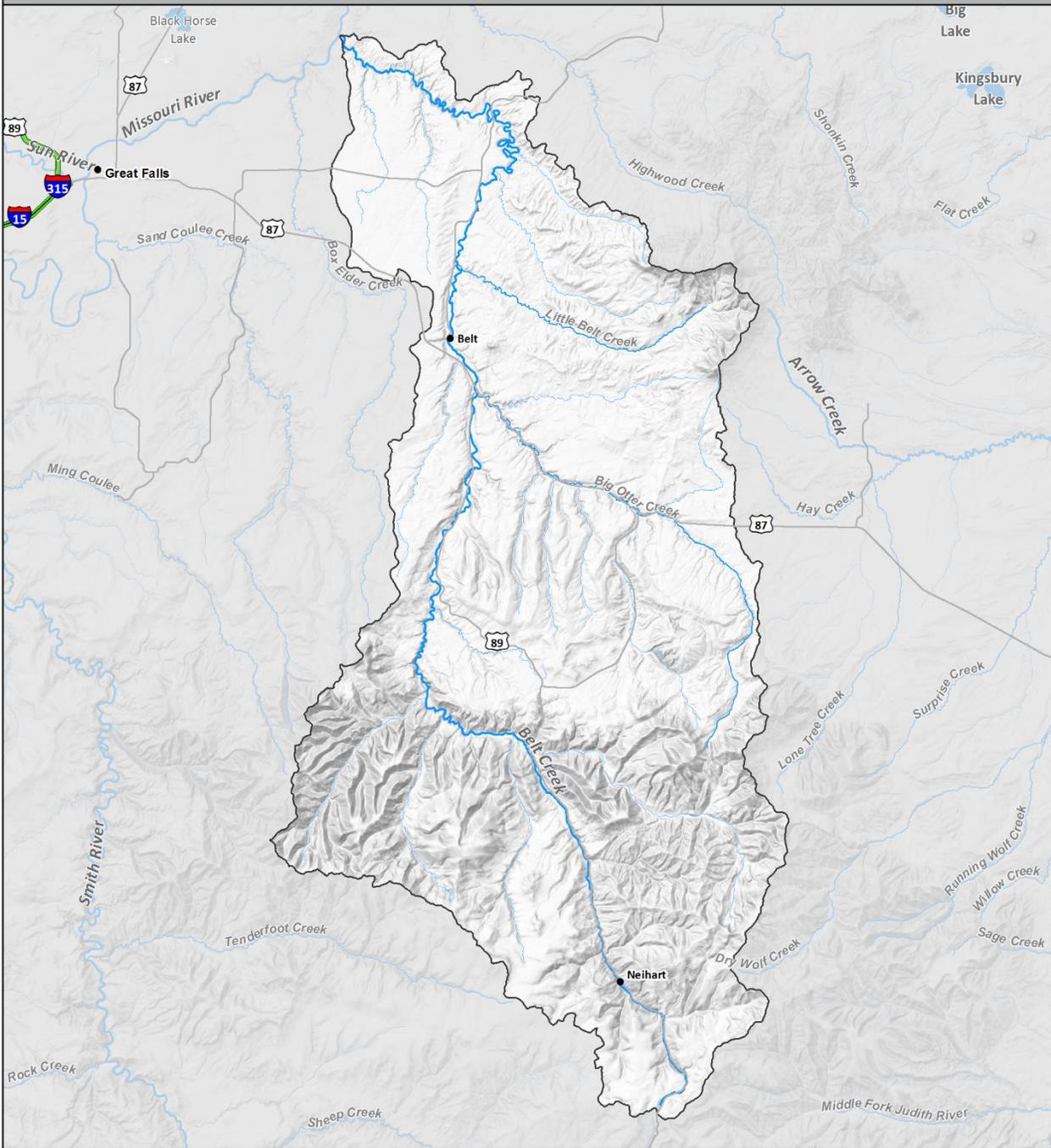


# Belt Creek Drainage

# MONTANA FWP



-  Tribal Lands
-  Drainage Boundary



Map Produced by:  
ASP - Geographic Data Services  
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Administrative boundaries and FWP Lands data from Montana Fish, Wildlife & Parks, Helena, MT. Background Imagery from ESRI



## **Belt Creek Drainage**

### **Physical Description**

Belt Creek is a major tributary of the Missouri River. It originates on the northwest side of the Little Belt Mountains and flows in a northerly direction for about 88 miles to its confluence with the Missouri River, 14 miles downstream of Great Falls in Cascade County. Belt Creek drains approximately 800 square miles of the Little Belt and Highwood mountains. The basin contains approximately 186 named perennial streams, comprising a total length of about 442 miles of perennial stream habitat. Major tributaries to Belt Creek include Jefferson, Dry Fork, Tillinghast, Pilgrim, Logging, Big Otter, Little Belt, and Big Willow creeks.

The upper basin of Belt Creek is situated in the mountainous area of the Lewis and Clark National Forest with its headwaters at an elevation of about 8,000 feet. The landscape of the headwaters is comprised of plateau-like mountains with V-shaped valleys carved through the sedimentary Belt formation of the parent rock. The basin supports subalpine and montane forests consisting mostly of lodgepole pine, Douglas fir, ponderosa pine, and subalpine fir. Within these forest zones, the upper 33 miles of Belt Creek flows through a steep, narrow valley before entering the Sluice Boxes, a limestone gorge about 14 miles in length. The riparian vegetation of the floodplain is variable with respect to elevation, consisting of an overstory of spruce and lodgepole pine in the cool, higher areas and lodgepole pine, Douglas fir, ponderosa pine and cottonwood in the lower temperate zone. Willows, water birch, rose, and red osier dogwood are shrub species which dominate the undergrowth of the riparian.

The gradient for this size of stream is unusually steep, averaging about 90 feet per mile near its headwaters at Neihart, to 40 feet per mile near Monarch. Channel substrates reflect the cascading nature of Belt Creek with boulders, large cobbles, and several outcroppings of bedrock typifying the stream bottom.

Belt Creek at the lower elevations flows through prairie foothills and benchlands joining the Missouri River at an elevation of 2,800 feet. This lower section begins at the confluence with Big Otter Creek and flows for 39 miles through gently dipping sandstone and shale formations while remaining entrenched within a narrow valley. The upper 13 miles of this reach typically are intermittent during dry periods, probably losing water to cavernous limestone. Downstream of this point, the stream typically becomes gaining again and remains perennial throughout its remaining course. The riparian vegetation consists of a diverse woodland environment dominated by a cottonwood overstory with an undergrowth of willows, chokecherry, rose and snowberry. Although the stream gradient lessens from that of upper Belt Creek, the average gradient of 28 feet per mile is unusually steep for a large prairie stream. Channel substrate is comprised primarily of cobbles, although scattered boulders are still present throughout its length. Cobbles and gravel in the lower end show increased silt deposits due to heavy sediment loads entering from lowland tributaries.

Land use in the Belt Creek drainage includes most types found east of the Divide. Timber harvest has been extensive in the past; however, harvest has been substantially reduced. Mountain pine beetle infestations and spruce budworm has had significant impacts on the forest health in recent years. Nearly all the land within the lower basin is managed for cattle ranching or farming. A substantial

amount of livestock grazing occurs in this area. Only minor grazing occurs in the forested upper basin. Hay and some crop land exist along the stream, but little of it is irrigated. There has been extensive silver, lead, zinc, and gold mining in the Little Belt Mountains in both the Carpenter-Snow Creek and Barker-Hughesville mining districts. Along with the mining of various ore deposits, considerable heavy metals pollution has occurred from several abandoned mining tailings. The water quality of streams in the Belt Creek drainage has been impaired because of runoff and groundwater. Both mining district sites are Federal Superfund sites and are in the early stages of remediation work. Numerous coal mines also operated near the town of Belt in the late 1800s and early 1900s. These mines, now abandoned, contribute acid mine drainage to Belt Creek. The abandoned coal mines discharge approximately 250 acre-feet of water each year to Belt Creek and approximately 700 pounds of iron and 500 pounds of aluminum on average to Belt Creek daily. Montana Department of Environmental Quality (DEQ) has begun clearing land for construction of a water treatment plant in the town of Belt to treat the contaminated water.

Historic and recent stream flows have been monitored at a U.S. Geological Survey (USGS) stream flow gage on Belt Creek near Monarch (river mile 52.0) and indicate lower flows in recent years. Average annual flow for a 31-year period from 1952-82 was 192 cfs compared to 130 cfs for the 9-year period from 2013 through 2021. Peak stream flow at this gage averaged 2,279 cfs (565 to 11,000 cfs) from 1952 to 1982 compared to 1,371 cfs (635 to 3,530 cfs) from 2013 through 2021.

## **Fisheries Management**

From the headwaters to the mouth of Big Otter Creek, a reach of approximately 51 miles, rainbow trout are the predominant sport fish found throughout the lower elevation stream reaches followed by mountain whitefish and brown trout. Westslope cutthroat trout and brook trout are present but relatively uncommon in the lower mainstem, but good populations are present in some tributary streams and the headwaters area. Brook trout tend to dominate the smaller, higher elevation streams. There are approximately 211 miles of stream that support rainbow trout and 197 miles of stream that support brook trout in the Belt Creek Drainage. Approximately 21 miles of stream in the Belt Creek Drainage support nonhybridized westslope cutthroat trout. Due to this relatively large number of headwater streams that hold conservation populations of westslope cutthroat trout, the upper portion of the mainstem Belt Creek has good numbers of westslope cutthroat trout of varying purity. The abundance of westslope cutthroat trout populations is primarily an artifact of the presence of naturally formed waterfalls and fragmented habitat in the Belt Drainage. Nongame species in the upper reaches of the drainage include mountain sucker, white sucker, longnose sucker, longnose dace, and Rocky Mountain sculpin.

The statewide fishing pressure and harvest survey for the period 1995-2019 reported an average of about 7,792 angler days of use annually and ranged from 3,437 in 2001 to 13,424 angler days in 1997. The most recent data estimated that 8,408 angler days occurred on Belt Creek in 2019.

Nearly one million mostly non-native trout were stocked between 1928 and 1996 in the mainstem Belt Creek. Approximately 3,000 catchable rainbow trout were stocked annually from the early 1960's to 1996 in a section that is chronically dewatered. Tributaries to the river were also stocked with large numbers of introduced trout for many years prior to 1996. Belt Creek has become an increasingly

popular trout fishery and has been managed as a wild trout fishery since 1996, when the stocking of trout was discontinued.

The lower reach of Belt Creek between the mouth of Big Otter Creek and the confluence with the Missouri River (39 miles) supports both cold water and warmwater fisheries. A marginal resident trout fishery exists in this reach and is limited because of low stream flows, high water temperatures, excessive siltation, and acid mine drainage effluent from abandoned coal mines. Rainbow trout and brown trout are the most common trout species found. To some extent both rainbow trout and brown trout from the Missouri River migrate up Belt Creek during their spawning seasons. Mountain whitefish have also been observed to migrate in large numbers into the lower mile of Belt Creek from the Missouri River to spawn. Historically, sauger migrated up Belt Creek (as high as Armington) during the late spring and resided in the stream until fall if flow conditions were adequate. No sauger have been observed in recent years in Belt Creek. However, credible reports of shovelnose sturgeon at Salem Bridge have been reported in recent years. In 1997 high flows in the Missouri River resulted in confirmed reports of northern pike in the sluice boxes section. Nongame fish found in lower Belt Creek include goldeye, longnose sucker, mountain sucker, white sucker, shorthead redhorse, carp, stonecat, and Rocky Mountain sculpin.

## **Special Management Issues**

### ***Acid Mine Drainage***

Decades of underground coal mining in the Great Falls Coal Field near Belt, Montana have resulted in acid mine drainage (AMD) discharging into Belt Creek. Water quality exceedances downstream of the discharges in Belt Creek have generally been for dissolved aluminum and total recoverable iron during baseflow conditions. DEQ has begun site preparation and dirt work for construction of a water treatment plant near the town of Belt to treat several sources of AMD prior to it reaching Belt Creek and thereby improving water quality to the stream. FWP, in cooperation with DEQ, completed monitoring of fish and benthic invertebrate populations and metal tissue concentrations upstream and downstream of the AMD in 2015 and 2018 in anticipation of the construction of the treatment plant. Similar monitoring will be conducted after the treatment plant is constructed and water is being treated to document changes to the populations and metals concentrations following AMD cleanup.

### ***Westslope Cutthroat Trout Conservation***

The Belt Creek drainage is home to several conservation populations of westslope cutthroat trout, providing opportunities to conserve this native species in the drainage. Nonhybridized populations exist in Carpenter, Charcoal, Crawford, Gold Run, Graveyard Gulch, Harley, Haystack, Lost, Middle Fork Little Belt, North Fork Little Belt, O'Brien, Palisade, Shorty, Tillinghast, and Villars creeks. The short-term goal is to protect all remaining nonhybridized populations of westslope cutthroat trout. The long-term goal of cutthroat trout conservation in the Belt Creek drainage is to have approximately 20% of the historically occupied habitat restored to secure conservation populations of cutthroat trout (see Part 1, 1.6.8(1) Westslope Cutthroat Trout).

To meet the short-term goals of westslope cutthroat trout conservation within the Belt Creek drainage, a fish barrier construction project is underway in Carpenter Creek. Construction of a concrete fish barrier in Carpenter Creek will secure two nonhybridized westslope cutthroat trout populations by preventing the upstream movement of non-native trout from Belt Creek.

Dry Fork Belt Creek has been identified as one location to conserve westslope cutthroat trout. A concrete fish barrier was constructed in 2015 on Dry Fork Belt Creek that isolates the upper 28 miles of stream habitat. Presently, non-native brook trout and rainbow trout are well established in the drainage. However, several conservation populations of westslope cutthroat trout are present including Sawmill, Henn Gulch, Bender, Spruce, Gold Run, Charcoal, Villars, Oti Park, and upper Dry Fork Belt creeks. Removal of the non-native trout from Dry Fork Belt Creek would secure the remaining conservation populations of westslope cutthroat trout and establish a large, interconnected population resistant to catastrophic events such as wildfire, drought, and disease.

### FISHERIES MANAGEMENT DIRECTION FOR BELT CREEK DRAINAGE

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Belt Creek (Headwaters to the mouth of Big Otter Creek)	51 miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Maintain populations within historic levels.
		Mountain whitefish (N)	Wild	General	Maintain population within historic levels.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations in tributaries, when possible. Survey tributaries and upper reaches of mainstem to determine upstream limit of westslope cutthroat trout. When biologically feasible, provide for limited consumptive use.
Habitat needs and activities: Maintain habitat and instream flows of 90 cfs.					
Jefferson Creek, Palisade Creek	6.6 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk.
		Rainbow trout, Brook trout	Wild	General	Monitor population and evaluate effects on westslope cutthroat trout population.
Chamberlain Creek	4.5 miles	Westslope cutthroat trout (N)	Wild	Conservation	Monitor Chamberlain Creek above barrier for presence of brook trout.
Habitat needs and activities: The existing barrier is suspect at high flows because of screen clogging and erosion under the splash pad. Future work should be conducted to modify the screen to pass debris and the splash pad should be extended downstream to prevent passage of non-native fish during significant flow events.					
O'Brien Creek, Shorty Creek	5.6 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk. Monitor above barrier for presence of brook trout.
		Brook trout	Wild	General	Monitor population and if determined that brook trout are negatively influencing westslope

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
					cutthroat trout, evaluate opportunities for suppression or removal.
Habitat needs and activities: Determine if brook trout are present above Neihart Reservoir.					
Carpenter Creek, Haystack Creek	9 miles	Westslope cutthroat trout (N)	Wild	Conservation	Evaluate opportunities to expand population and provide secure habitat throughout the Carpenter Creek drainage in anticipation of mine remediation and reduction of metals pollution in the Carpenter-Snow Creek drainage.
Habitat needs and activities: Construct fish barrier to secure conservation population of westslope cutthroat trout.					
Harley Creek	3.5 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk.
		Brook trout	Wild	General	Monitor population and evaluate effects on westslope cutthroat trout population.
Habitat needs and activities: Updated genetic and demographic monitoring needed.					
Graveyard Gulch	2.5 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk. Monitor above barrier for presence of brook trout.
Crawford Creek	2.4 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain population and expand densities to occupy all habitat above barrier.
Habitat needs and activities: Evaluate wild fish transfer to lower reaches of creek where westslope cutthroat trout densities are low.					
North Fork Hoover Creek	5 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extinction risk.
		Brook trout	Wild	General	Monitor population and evaluate effects on westslope cutthroat trout population.
Dry Fork Belt Creek and tributaries	32.5 miles	Rainbow trout, Brook trout	Wild	Suppression	Explore opportunities to chemically remove non-native trout above constructed fish barrier.
		Westslope cutthroat trout (N)	Wild	Conservation	Future management as westslope cutthroat trout fishery with angling opportunity.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Maintain habitat and instream flows of 7 cfs. Management toward a conservation population of westslope cutthroat trout with limited consumptive use.					
Tillinghast Creek, Horn Creek, James Creek, Wilson Creek	17 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk.
		Brook trout, Rainbow trout	Wild	General	Monitor population and evaluate effects on westslope cutthroat trout population.
Habitat needs and activities: Updated genetic and demographic monitoring needed. Investigate westslope cutthroat trout presence/absence in Thunder Creek.					
Pilgrim Creek	10.3 miles	Westslope cutthroat trout (N)	Wild	Conservation	Explore opportunities to enhance existing barrier near the mouth.
Habitat needs and activities: Modify/enhance existing barrier near the mouth.					
Logging Creek	11 miles	Brook trout, Rainbow trout, Brown trout	Wild	General	Manage as recreational fishery with consumptive harvest.
		Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk.
Big Otter Creek	26.5 miles	Rainbow trout, Brown trout, Brook trout	Wild	General	Maintain populations within historic levels.
Habitat needs and activities: Maintain spring creek type habitat and instream flows of 5 cfs.					
Lost Creek	0.6 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk.
Habitat needs and activities: Evaluate opportunities to replicate population. Updated genetic and demographic monitoring needed.					
Belt Creek (Big Otter Creek to confluence with Missouri River)	37 miles	Rainbow trout, Brown trout	Wild	General	Maintain populations with historic levels.
		Mountain whitefish (N)	Wild	General	Maintain population within historic level.
		Warmwater species (N)	Wild	Conservation	Maintain populations within lower Belt Creek.
Habitat needs and activities: Maintain habitat and instream flows of 35 cfs. Monitor fishery near Belt before and after water treatment plant construction.					

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Little Belt Creek	15.8 miles	Rainbow trout, Brown trout	Wild	General	Maintain populations within historic levels
		Brook trout	Wild	General/ Suppression	Pursue removal of brook trout above a barrier on private land to benefit westslope cutthroat trout and provide an additional layer of security for the North Fork and Middle Fork Little Belt Creek westslope cutthroat trout populations. Maintain brook trout below barrier.
		Westslope cutthroat trout (N)	Wild	Conservation	Pursue opportunities to expand existing Little Belt Creek population downstream to barrier on private land.
Middle Fork Little Belt Creek	2.6 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk. Explore opportunities to expand population downstream if private landowners are amenable.
		Brook trout	Wild	General	Monitor above culvert barrier for presence of brook trout. Evaluate opportunities to suppress or remove if found above barrier.
Habitat needs and activities: Eradication of brook trout above a waterfall barrier on private land would create a westslope cutthroat trout population resistant to long-term extinction threats and would include the North Fork and Middle Fork Little Belt drainages.					
North Fork Little Belt Creek	2.4 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance population to reduce extirpation risk. Explore opportunities to expand population downstream if private landowners are amenable.
		Brook trout	Wild	General	Monitor above bedrock barrier for presence of brook trout. Evaluate opportunities to suppress or remove if found above barrier.

Water	Miles/acres	Species	Recruitment Source	Management Type	Management Direction
Habitat needs and activities: Eradication of brook trout above a waterfall barrier on private land would create a westslope cutthroat trout population resistant to long-term extinction threats and would include the North Fork and Middle Fork Little Belt drainages.					
Westslope Cutthroat Trout genetically unaltered conservation population streams (isolated single species populations)	33 miles	Westslope cutthroat trout (N)	Wild	Conservation	Maintain or enhance populations to reduce extirpation risk. Allow harvest in robust populations.
Habitat needs and activities: Maintain or improve habitat and explore suitable sites for barriers or reducing fragmentation of westslope cutthroat trout occupied habitat.					
Westslope Cutthroat Trout genetically altered conservation population streams	59 Miles	Westslope cutthroat trout (N), Hybrids (mixed populations)	Wild	Conservation	Maintain or enhance populations. Allow harvest in robust populations.
Brook Trout Streams	197 Miles	Brook trout	Wild	General	Manage for consumptive harvest.
Private/Public Ponds with public access		Trout Warmwater species	Hatchery	Put-and-Take	Maintain existing pond fisheries available to the public for harvest.
Habitat needs and activities: Enhance structure in ponds when possible and needed. Seek additional opportunities.					